

WHAT IS CLAIMED IS:

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1. A circuit board assembly comprising:  
a circuit board;  
a module mounted on the circuit board and  
having an electronic circuit device and a heat  
10 radiator attached to the electronic circuit device;  
and  
a flat coil element,  
wherein said heat radiator has an  
extending part protruding from said electronic  
15 circuit device and extending parallel to a surface  
of said circuit board;  
a coil mounting area provided with no  
pattern wire is formed in a part of said circuit  
board facing the extending part; and  
20 said flat coil element is mounted parallel  
to said circuit board in a state where a coil part  
of said flat coil element faces said coil mounting  
area.

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2. The circuit board assembly as claimed  
in claim 1, wherein said coil mounting area is an  
30 opening formed by removing a part of said circuit  
board.

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3. The circuit board assembly as claimed  
in claim 1, wherein a distance between said

extending part of said heat radiator and said flat  
coil element is set to a distance at which no eddy  
current is generated within said extending part due  
to a magnetic field generated by said flat coil  
5 element.

10 4. The circuit board assembly as claimed  
in claim 1, wherein an opening is provided in a  
portion of said extending part of said heat radiator,  
the portion facing said flat coil element.

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5. The circuit board assembly as claimed  
in claim 1, wherein said module is a power module  
20 for driving a plasma display, and said flat coil  
element provides an inductance used for recovering  
an electric power of the plasma display.

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6. The circuit board assembly as claimed  
in claim 5, wherein said extending part of said heat  
radiator extends on an output side of said power  
30 module.

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7. A flat coil comprising:  
a coil part formed by a pattern wire  
provided on each layer of a multi-layer substrate,

wherein the coil part is electrically connected to a corresponding terminal by a conductive part extending in a direction of thickness of said multi-layer substrate, and the coil part of each layer is configured and arranged to be electrically connectable to the coil part of another layer by short-circuiting the terminals.

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8. A flat coil comprising:

a coil part formed on each of an uppermost layer and a lowermost layer of a multi-layer substrate,

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wherein the coil part is electrically connected to a corresponding terminal by a conductive part extending in a direction of thickness of said multi-layer substrate, and the coil part of each layer is configured and arranged to be electrically connectable to the coil part of another layer by short-circuiting the terminals.

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9. A circuit board assembly comprising:  
a circuit board;

a module mounted on the circuit board and having an electronic circuit device and a heat radiator attached to the electronic circuit device; and

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a flat coil comprising a coil part formed by a pattern wire provided on each layer of a multi-layer substrate

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wherein the coil part is electrically connected to a corresponding terminal by a

conductive part extending in a direction of  
thickness of said multi-layer substrate, and the  
coil part of each layer is configured and arranged  
to be electrically connectable to the coil part of  
5 another layer by short-circuiting the terminals, and  
wherein said heat radiator has an  
extending part protruding from said electronic  
circuit device and extending parallel to a surface  
of said circuit board, and said flat coil is mounted  
10 in an area facing said extending part of said heat  
radiator.

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10. The circuit board assembly as claimed  
in claim 9, wherein an opening is provided in a  
portion of said extending part of said heat radiator,  
the portion facing said flat coil element.  
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11. A circuit board assembly comprising:  
25 a circuit board;  
a module mounted on the circuit board and  
having an electronic circuit device and a heat  
radiator attached to the electronic circuit device;  
and

30 a flat coil comprising a coil part formed  
on each of an uppermost layer and a lowermost layer  
of a multi-layer substrate,

wherein the coil part is electrically  
connected to a corresponding terminal by a  
35 conductive part extending in a direction of  
thickness of said multi-layer substrate, and the  
coil part of each layer is configured and arranged

to be electrically connectable to the coil part of  
another layer by short-circuiting the terminals, and  
wherein said heat radiator has an  
extending part protruding from said electronic  
5 circuit device and extending parallel to a surface  
of said circuit board, and said flat coil is mounted  
in an area facing said extending part of said heat  
radiator.

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12. The circuit board assembly as claimed  
in claim 11, wherein an opening is provided in a  
15 portion of said extending part of said heat radiator,  
the portion facing said flat coil element.